

#47 Martin

ISSUANCE TRANSMITTAL SHEET

ISSUANCE NUMBER:

MPD 5330.1

DATE:

October 24, 1967

MATERIAL TRANSMITTED

1. The purpose of this directive is to reverify that selected installed critical components are qualified for SA-501 and that their quality is assessed as adequate for the AS-501 mission.
2. This is a new Program Directive for the Saturn V Program.

FILING INSTRUCTIONS

File in standard three-ring binder in numerical sequence without regard to the alphabetical prefix which identifies the type of issuance.

GEORGE C. MURPHY

SPACE
FLIGHT
CENTER

MPD 5330.1

EFFECTIVE DATE:

October 24, 1967

PROGRAM DIRECTIVE

PROGRAM AFFECTED: SATURN V

SUBJECT: QUALITY HISTORY REVIEW OF SELECTED SA-501 COMPONENTS

SATURN V PROGRAM DIRECTIVE NUMBER: 47 REVISION NUMBER:

DATE OF REVISION:

PREPARED BY: SATURN V RELIABILITY AND QUALITY OFFICE (I-V-Q)
PHONE: 877-3837/Gresham

1. PURPOSE

The purpose of this directive is to:

Reverify from documentary evidence that selected installed critical components are indeed those that are qualified for SA-501 and that their quality is assessed as adequate for the SA-501 mission.

- a. Provide criteria for selection of the above components.
- b. Establish requirements and responsibilities for conducting this review.

2. SCOPE

This directive is applicable to all Saturn V Stage Managers (including I.U.), LVGSE Manager, Engine Office, their contractors, subcontractors, and MSFC Agencies having Government Furnished Equipment (GFE) responsibilities.

3. REFERENCES

- a. SA-501 Systems Engineering Summary presented October 19, 1967, at the Program Director's Flight Readiness Review. Attachment "A" to this directive is a copy of the Systems Engineering Problem Summary.
- b. Saturn V Reliability Analysis Model Summary, MSFC Dwg. No. 10M30570 dated May 4, 1967.

4. POLICY

- a. Particular emphasis shall be placed on vendor supplied components.
- b. Experience and knowledge gained in this review will be passed on to the SA-502 and subsequent launch vehicles.

5. RESPONSIBILITIES

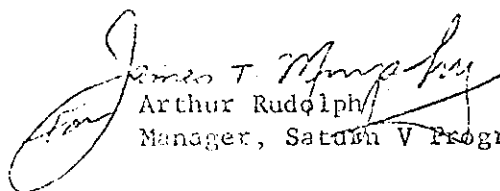
- a. The Saturn V Reliability and Quality Office (I-V-Q) will be responsible for the overall coordination of this activity.
- b. The Stage, LVGSE, and Engine Project Offices will be responsible for implementing this directive.
- c. The Stage, LVGSE, and Engine Contractors (under the guidance of the MSFC Stage, Engine, and LVGSE Project Offices) will be responsible for identifying their components which contribute to an increase in the mission risks identified in reference 3.a.
- d. The I-V-Q Office will identify additional selected critical components to be reviewed. Components selected will, in general, have a criticality number greater than 100 (as listed in reference 3.b.) or are suspect because of qualification history or other causes.
- e. The Stage, LVGSE, and Engine Contractors and MSFC Agencies having GFE responsibilities will:
 - (1) Identify the exact configuration and serial number of the selected components (paragraphs 5.c. and 5.d.) that are installed on SA-501.
 - (2) Determine specifically that these installed components are qualified for SA-501.
 - (3) Review the documented history of the components identified in 5.c. and 5.d. including:
 - (a) Qualification history including waivers.
 - (b) Acceptance test history, inspection, and Material Review Board history.

5. RESPONSIBILITIES (Cont'd)

- (c) Number and type of failures or anomalies encountered during all previous use and testing, and results of failure analysis.
 - (d) Adequacy of selection criteria and control for parts, materials, components used to manufacture stages, and consistency of enforcement.
 - (e) Cleanliness controls in effect.
 - (f) Adequacy of processes for welding, plating, heat treatment, etc.
 - (g) Configuration control being used to govern components piece parts.
 - (h) Assessment of service life remaining in component.
 - (i) Reassess the probability of failure in critical failure modes.
- (4) Prepare a Discrepancy Condition Report for each problem or potential problem identified in the above review, and recommend to the appropriate MSFC Stage, LVGSE, or Engine Project Office, either:
- (a) Acceptance of the risk and the supporting rationale, or
 - (b) Proposed corrective action, a plan for accomplishment, and assessment of impact.
- f. R-QUAL will review the recommendations made in 5.e. (4) above, assess their adequacy, and report results to the appropriate Stage, LVGSE, or Engine Project Office.
- g. The MSFC Stage, LVGSE, and Engine Project Managers will review the recommendations made in 5.e. (4) and 5.f. above and will present a coordinated recommendation to the Saturn V Program Manager.

6. IMPLEMENTATION

It is imperative that the actions prescribed herein be initiated immediately and be completed no later than 3 days before the beginning of final count for the launch of AS-501. See schedule, Attachment "B".


 James T. Murphy
 Arthur Rudolph
 Manager, Saturn V Program

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Attachment "A" and "B"

(Distribution, see page 4)

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ATTACHMENT "A" TO PROGRAM DIRECTIVE NO. SUBJECT: QUALITY
HISTORY REVIEW OF SELECTED SA-501 COMPONENTS

SYSTEMS ENGINEERING PROBLEM SUMMARY

From: SA-501 Systems Engineering Summary presented October 19, 1967, at the
Program Director's Flight Readiness Review

Unavoidable and Accepted Risks for SA-501

1. Interference with mobile launcher
 - a. S-IC engine hardover at launch.
 - b. Thrust loss of S-IC Engines 1 or 2 within 5 seconds after launch.
2. S-IC engine out at high Q.
3. S-II second plane separation.
4. Spacecraft hypergol leakage.
5. S-IVB engine actuator failure.
6. MSS interference with damper
7. S-IVB African impact

ATTACHMENT "A" TO PROGRAM DIRECTIVE NO. SUBJECT: QUALITY
HISTORY REVIEW OF SA-501 COMPONENTS

IMPLEMENTATION SCHEDULE

<u>TASK</u>	<u>RESPONSIBILITY</u>	<u>OCTOBER</u>												<u>NOVEMBER</u>		
		23	24	25	26	27	28	29	30	31	1	2	3			
1. Identify components contributing to mission risks.	Stage, LVGSE, and Engine Contractors.			▽												
2. Identify additional critical components to be reviewed.	I-V-Q		▽													
3. Review Quality History of selected components.	Stage, LVGSE, and Engine Contractors; and MSFC agencies having GFE responsibilities.															
4. Identify weakness and make recommendations to Project Office.	Stage, LVGSE, and Engine Contractors; and MSFC agencies having GFE responsibilities.															▽
5. Make coordinated recommendations to Saturn V Program Manager.	Stage, LVGSE and Engine Project Managers.															▽